Annex A: Materiel

Dominant Maneuver

General

Dominant Maneuver is the ability of joint forces to gain positional advantage with decisive speed and overwhelming operational tempo to achieve military tasks. Widely dispersed joint air, land, sea, amphibious, special operations, and space forces, capable of scaling and massing force or forces and the effects of fires as required for either combat or noncombat operations, will dominate across the range of military operations through the application of information, deception, engagement, mobility, and countermobility capabilities. Dominant Maneuver requires forces that are adept at conducting sustained and synchronized operations throughout the full spectrum of operations, in all environments, and with joint and combined forces to rapidly achieve objectives from dispersed locations, at reduced risk, and with fewer platforms and a smaller logistics requirement.

Overall, the strategy for modernization of the Maneuver, Mobility, Soldier Systems and the Aviation functional areas aims fundamentally at supporting the Army's Transformation process within the existing resource constraints.

Ground Combat Maneuver, Mobility and Soldier Systems Modernization in Support of Transformation

Overview

Maneuver, Mobility forces and Soldier Systems will transform to the Objective Force end state along three major paths—the Legacy Force, the Interim Force, and the Objective Force. The Army will maintain and improve warfighting capabilities of the Legacy Force through modernization by recapitalizing selected fleets through rebuild and selective upgrade programs. The sustainment and improvement of legacy systems will focus on the Counterattack Corps to ensure combat overmatch and mitigate risk as the Army transforms to the Objective Force. Improving survivability, lethality, and maintainability are critical components of the modernization strategy. The Army's Objective Force will continue to be the 21st Century's preeminent land force for the broad range of missions from support, including Homeland Security, to decisive warfighting.

Light Forces. Future adversaries will exploit urban and complex terrain for sanctuary. Light forces must be extensively trained, properly equipped, and psychologically prepared for urban warfare. The modernization of light combat maneuver forces (SOF, Ranger, Air Assault, Airborne and light infantry units) will seek to make significant

improvements in lethality, survivability, mobility, C4ISR and sustainability in order to meet the complex demands of full spectrum operations. Critical components of light force modernization focus on equipping the individual fighting soldier through the "Soldier As A System" modernization approach, and equipping light units with systems and platforms enabling combat overmatch against any and all threats, day or night. Enhanced lethality against mechanized forces through the fielding of the Javelin and Line-of-Sight Antitank Weapon (LOSAT) and highly accurate and responsive indirect fires through the deployment of the Mortar Fire Control System (MFCS) will remain essential capabilities for light combat forces.

Mechanized Forces. Our modernization and recapitalization efforts for legacy mechanized forces give priority to maintaining near-term warfighting capability of a Counterattack Corps. The focused recapitalization through rebuild and selective upgrade programs targets platforms that are expected to remain in service (Active and Reserve Components) throughout the Army's Transformation to the Objective Force. To retain flexibility and mitigate risk the Army has synchronized three critical decision points. The Objective Force (Future Combat System) technology decision in FY03 will drive the decision concerning the digitization of the Active Component fleets outside the Counter Attack Corps. The FY06 reliability decision concerning Abrams formations will determine if the new tank engine will be inserted in the Active Component Abrams fleet outside the Counter Attack Corps. These established decision points allow the Army to correctly balance resources in support of the Army's Transformation.

Interim Force. Combat maneuver and mobility forces initiated Interim Force implementation in FY00 by beginning the conversion of two Fort Lewis-stationed units—a 2nd Infantry Division heavy brigade and a 25th Infantry Division light brigade—to an Interim configuration. Meeting a rapid deployment requirement means the Interim Force has to be equipped with reduced weight and volume combat vehicles. The Interim Armored Vehicle (IAV) was selected by the Army to ensure that the deployability requirements of the Interim Force can be met.

Objective Force. Army Transformation leads to the Objective Force. Today, the science and technology (S&T) community is working hard to develop a family of systems which is collectively referred to as the Future Combat Systems (FCS). FCS is envisioned as a digitized, system of systems, land-combat capability with multi-mission functionality. FCS' primary design characteristics include networked command and control (C2) on the move; beyond line-of-sight (BLOS) direct fires; advanced, long-range, precision indirect fires; standoff sensors; countermine capability; and robotics. When technologies are mature, and when the production lines are ready, we will field the FCS in unit sets.

While FCS represents a major S&T and acquisition effort, the enduring hallmark of the Objective Force will be its soldiers. Soldiers and units must be organized, manned, equipped, and trained to do the job decisively.

This means that we must prepare resource and equip them to overcome both the risk of mission failure and the risk of exorbitant casualties. Objective Force soldiers will be physically and psychologically prepared for non-contiguous warfare, fighting in small units separated from their higher headquarters or sister units for days at a time. The Army will provide soldiers the maximum protection at the individual level, whether that soldier is on a platform or on the ground. The soldier and platforms will leverage integration of lighter, more effective ballistic protection (composite materials) with active and passive protection systems to enhance survivability against kinetic energy weapons, and current and projected enemy lethal effects.

Seamless Transition. The maintenance of a trained and ready force to ensure operational readiness and technology transfers from the upgraded legacy systems and interim systems to the Objective Force is the focus of the modernization effort. Certain technologies developed first in legacy systems, as part of modernization programs, will ultimately lead to Objective Force platform technology insertions. Force XXI Battle Command, Brigade and Below (FBCB2) integration, power plant improvements, munitions development, digital components and integrated communications systems (voice activation, wireless intercoms), and the family of Standoff Minefield Detection Systems (STAMIDS) provide the materiel transition to the Objective Force. The experiences our soldiers and commanders will have with these emerging technologies will lead to a nearly seamless transformation to the Maneuver, Mobility forces and Soldier Systems of the Objective Force.

Soldier Modernization. The soldier in the 21st Century must be capable of performing a myriad of missions across the full spectrum of operations around the world and at home, to include peace enforcement, counterterrorism/ homeland defense, and regional conventional conflict, while maintaining a core competency to provide land power dominance. Although well equipped, today's soldier does not possess combat overmatch in the close fight in complex or MOUT environments, nor is he properly equipped to transition to the objective force and fight and win decisively on the future battlefield.

Soldier Modernization encompasses the integration of soldier systems and equipment that consist of everything that is worn, carried, or consumed for individual use in a tactical environment. The “Soldier as a System” is analogous to any other major weapons systems platform, in that it has numerous component parts that must work in harmony to be effective. Yet, modernizing the soldier is uniquely different from all other major weapons systems platform modernizations in two significant respects. First, the soldier system frame is human; its loss is not measurable in dollars. Second, the soldier is the common element for all Army major weapons system platforms

and the operation of every system is affected by the quality of the soldier and the synergy created by his or her ability to interface effectively and efficiently with his or her equipment and systems.

The soldier modernization strategy provides for integrated soldier systems to enhance the soldier's capabilities in the near-term. Science and technology followed by technology insertion will equip the objective force soldier with the capabilities essential for full spectrum dominance. With the soldier as the critical link to success in the patterns of operation, enhancing soldier combat effectiveness through improvements in warfighting capabilities is imperative to future mission success and transforming the soldier who will remain the heart of the Objective Force.

The soldier modernization process is accomplished through the use of one of three soldier system development paths: the Soldier Enhancement Program (SEP), the Clothing and Individual Equipment (CIE) program, and the Warrior Programs (represented by Land Warrior, Mounted Warrior, and Air Warrior).

The SEP (Marines participate through the Marine Enhancement Program–MEP) requires minimal Research, Development, Test, and Evaluation (RDTE) effort and shortens the developmental phase of the life cycle process through the use of commercial off-the-shelf (COTS) items with a goal of three years to fielding to soldiers.

The CIE program encompasses all combat, life support, ballistic, and environmental protection items worn or carried by the soldiers for individual use (that have not already been addressed under the SEP program.

Central Funding and Fielding (CFF) is the procurement mechanism that acquires and fields life-support and

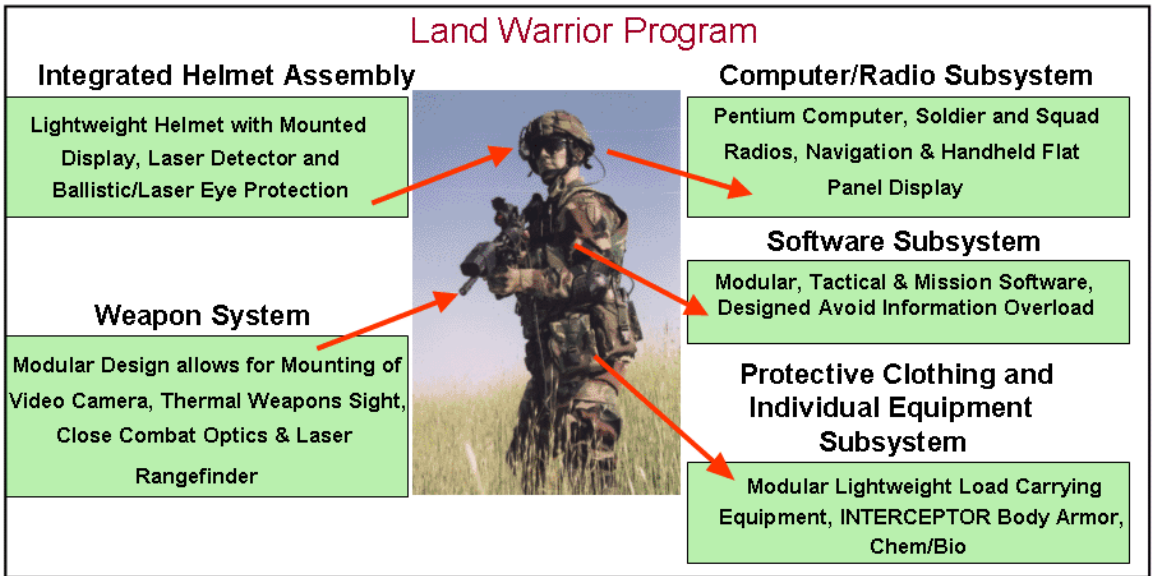
mission-enhancing equipment to individual soldiers. CFF has been the mechanism used to field items developed by the SEP program and the Organizational Clothing and Individual Equipment RDTE (OCIE) process. The intent is to field these items within a three-year period after RDTE is complete.

Warrior Programs. Advancement of the flagship Warrior Programs will provide the soldier with a decisive winning edge on the battlefield. Incorporating Commercial-Off-the-Shelf (COTS) and Government-Off-the-Shelf (GOTS) components and high-payoff, advanced technologies, the Warrior Programs will transform combat soldiers into lethal, survivable soldier systems.

Land Warrior (LW) is a first generation modular, integrated fighting system for infantry soldiers that integrates many components and technologies into a lethal, survivable, mobile, and more situationally-aware soldier system. Land Warrior combines sensors, computers, lasers, geo-location, and radios with soldier's mission equipment to achieve the Army Vision of enhancing the individual soldier's lethality, survivability, mobility, and situational awareness. The systems approach optimizes and integrates these capabilities, to include integration with the Army Tactical Internet, without adding to the soldier's combat load or logistical footprint. LW block improvements will include alternative power sources, Combat ID, and system voice control in the near term to meet objective requirements and Objective Force Warrior technologies in the far term.

LW S&T advanced technology components, to include alternative power sources, Combat ID, vector graphics maps, and system voice control, will be technically inserted over time to meet objective requirements.

Air Warrior is an integrated, modular Aviation Life Support Equipment and Chemical/Biological protective ensemble. The AW system is modular in design to permit tailoring for mission requirements, to minimize weight and bulk, and to facilitate maintenance and support.



Mounted Warrior will be a system of systems, linked through technology insertion to other Warrior Programs, which significantly enhances the combat vehicle crewmember's operational capabilities.

Discussion of Key Equipment

Soldier Modernization

Own the Night Modernization. Advances in un-cooled thermal sensors and Image Intensification and the fusion of both promise to provide our soldiers with the ability to overmatch enemy soldiers. The Enhanced Night Vision Goggle, a passive sensor fused electro-optical night vision device, will provide soldiers with the ability to engage and execute close combat in all levels of light, adverse weather conditions and under battlefield obscurant conditions. Thermal Weapon Sights are a family of low-cost, lightweight, man portable

infrared imaging devices of high resolution to be used for surveillance and fire control of individual and crew served weapons during both daylight and darkness. TWS operate in adverse weather and dirty battlefield scenarios including light foliage, smoke, dust, and camouflage and will be fielded to legacy, interim and objective forces.

Objective Individual Combat Weapon (OICW). This dual barrel OICW will combine the lethality of a 20mm air-bursting munitions, 5.56mm NATO ammunition, and a full solution target acquisition/fire control system to affect decisively violent and suppressive target effects and provide a leap ahead in small arms performance. This target acquisition/fire control system will incorporate a laser rangefinder, ballistic computer, direct view optics, video sight, electronic compass, thermal capability and a target tracker. The OICW's high explosive air bursting munitions will be capable of defeating not only exposed targets, but those in defilade (targets that have taken cover behind structures, terrain features and/or vehicles), a capability which the current rifle and carbine do not have.

Interceptor Body Armor (IBA) provides "bullet-stopping" protection for dismounted soldiers and Marines against fragmentation, fleschettes, and small arms rounds (7.62x54, 5.56 Green Tip) at a reduced weight compared to current systems.

The Body Armor Set, Individual, Countermine (BASIC) provides improved ballistic protection for dismounted soldiers engaged in countermine tasks/missions and by other soldiers operating in an environment where mines are present. The BASIC is an integrated, outerwear clothing system designed to provide ballistic and blast protection against medium to high velocity Anti-Personnel (AP) mines.

The Advanced Bomb Suit will provide protection from Unexploded Ordnance

(UXO) and Improvised Explosive Devices (IED) fragmentation, blast, and overpressure. A modular design configuration will meet the specific needs of various users. It reduces weight (roughly 12% using new lightweight materials), improves protection, and combines service requirements.

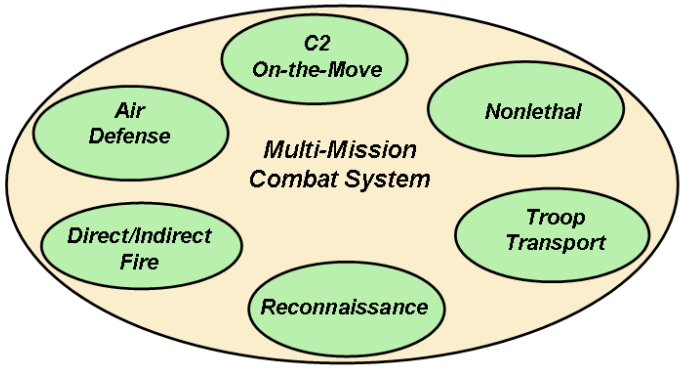
Operational Requirement. Modernizing the soldier to maintain combat overmatch will continue to remain a high Army priority. The Soldier System programs above focus on increasing lethality, survivability, C4ISR and sustainability of the individual soldier faced with emerging threats across the spectrum of conflict in different environments. Soldier modernization must remain a very high priority as the Army defeats the threat today and transforms to the Objective Force.

Program Status. Emerging operational requirements and urgency have increased the potential for program acceleration of night vision goggles and thermal weapon sights (currently under funded). OICW funding is pending outcome of the pre-Milestone B decision/review in 2QFY02. The IBA (fielded since FY00), BASIC (begins fielding in FY02) and the Advanced Bomb Suit are sufficiently funded to meet critical requirements but are also potential acceleration candidates to meet emerging needs. Land Warrior, although funded for Special Operation Forces and IBCTs, has potential for accelerated fielding with additional procurement funding.

Ground Forces

Future Combat Systems (FCS)

Description. The FCS is a networked systems of systems that will serve as a core building block within the Objective Force to develop overmatching combat power, sustainability, agility, and versatility necessary for full spectrum military operations. The FCS enables soldiers to operate as a coordinated part of a distributed, networked force, enabling innovative operational behaviors and organizational structures. The FCS will enable soldiers in the Objective Force to perform a wide range of military activities and operations, from small-scale contingencies to stability and support operations to major theaters of war. The FCS operates as part of an overwhelmingly lethal, strategically deployable, self-sustaining, and survivable combat and combat support force.



The FCS leverages advanced technologies with the capability to incorporate future advances via a

deliberate technology insertion program of block improvements over time. Versatility will be realized through emphasis on an open architecture system concept, with an easily upgradeable and tailorable design approach to enable the system of systems to engage in different missions as needed. The program uses key promising technologies and techniques in areas such as survivability, lethal and non-lethal effects, supportability, propulsion, mobility, structures, robotics, human factors, training, and modeling and simulation. Such technologies combined with innovative concepts of operations and an open systems architecture approach support the fielding of FCS-equipped combat formations this decade and into the future.

The FCS provides a secure command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) system to harness advances in the distribution and effective use of information power. The FCS may consist of a combination of manned and unmanned air and ground elements.

Operational Requirement. The operational requirements are not finalized. The Army approved the draft Mission Needs Statement (MNS) on 25 October 2001. The MNS identifies a force possessing campaign qualities of endurance, stamina, robustness and sustainability, enabling it to fight for the duration of a campaign supporting strategic, operational, and tactical tasks. To accomplish these qualities, the force must be enabled to: See First, Understand First, Act First, and Finish Decisively.

Program Status. In February 2000, the Army partnered with the Defense Advanced Research Projects Agency (DARPA) and established an aggressive, collaborative demonstration program. The Army budgeted funds for the DARPA/Army collaborative program, identified S&T programs that support the FCS initiative, and assigned an Army program manager to DARPA. In September 2001, the Army assigned total program management authority to the Program Executive Officer, Ground Combat Systems. In November 2001, DARPA released a draft solicitation to industry requesting proposals for a Lead Systems Integrator responsible to conclude the Concept and Technology Development phase by providing the systems architecture and material concept to meet required Future Combat Systems capabilities and support feasibility demonstrations up to the Milestone B decision in the third quarter of fiscal year 2003.

Interim Armored Vehicle (IAV)

Description. The Interim Armored Vehicle (IAV) is the centerpiece combat and combat support platform for the Interim Brigade Combat Teams (IBCTs) of the Interim Force. Two variants of the IAV will be fielded: the Mobile Gun System (MGS) and the Infantry Carrier Vehicle (ICV). There will be eight additional configurations of the ICV: Reconnaissance Vehicle, Mortar Carrier, Commander Vehicle, Fire

Support Vehicle, Engineer Squad Vehicle, Medical Evacuation Vehicle, Antitank Guided Missile Vehicle, and Nuclear, Biological and Chemical Reconnaissance Vehicle. Performance highlights of the IAV include: strategic responsiveness-roll on/roll off combat capable with minimal preparation, decisive offensive action-dismounted infantry assault enabled by fires and platforms, holistic survivability and force protection- integral all around 14.5mm AP and 152mm artillery airburst protection (upgrade to RPG with add-on armor) and superior situational awareness-internetted Combined Arms Company Teams to give a full spectrum capability. The IAV provides a unique family of systems approach that maximizes commonality and integrated capabilities while filling an immediate gap in the current force.

Operational Requirement: The IAV fills a requirement for the Army that provides a rapidly deployable and strategically responsive vehicle across the full spectrum of operations: stability and support operations (SASO), small-scale contingencies (SSC) and major theaters of war (MTW).

Early Entry, Offensive Orientation and Combat Brigade; the IAV in IBCTs support the Chief of Staff of the Army's Campaign Plan Initiatives:

- More lethal and survivable than Light Brigades
- More Deployable and Support able than Heavy Brigades

The capabilities the IAV provides to the IBCT enables the Army to respond immediately to urgent operational requirements and lays forth a glide path to the Objective Force.

Program Status. Planned procurement is for 2,131 vehicles consisting of two variants: Infantry Carrier Vehicle (ICV) and Mobile Gun System (MGS). The program is adequately funded for six IBCTs, or one a year from Fiscal year 2002 to fiscal year 2008. The Army is aggressively seeking to accelerate the production, fielding and Initial Operational Capability of the IBCTs.

Abrams Tank

Description. The Abrams rcapitalization program seeks to maintain combat overmatch and reduce operations and support costs. The M1A2 System Enhancement Program (SEP) is a selective upgrade of the M1 tank or the retrofit of the fielded M1A2 tank that includes a rebuild of critical components to near zero hours/miles. M1A2 SEP tank includes the insertion of a 2nd Generation Forward Looking Infrared Radar (FLIR) with a Commander's Independent Thermal Viewer (CITV) to enhance the target acquisition and significantly improve lethality, digital components to support FBCB2, digital diagnostics, thermal management to reduce battlefield signature, and improved armor protection to sustain survivability against

emerging threats. The M1A1 Abrams Integrated Management Program (AIM) is a rebuild program with selective technology insertions designed to extend the service life of the fleet while reducing operations and support costs. The M1A1 D (Digitized) tank is a rebuilt tank appliquéd with FBCB2. The Army will decide in FY03 whether to continue digitization of the rest of the Active Component. Critical to all Abrams platforms is the Abrams Crusader Common Engine (ACCE) program.

While the Counterattack Corps M1A2 SEP tanks will be retrofitted with the ACCE, the Army will decide in FY06 if the remaining Active Component Abrams tanks will get the ACCE.

Operational Requirement. The Abrams tank provides mobile, protected, firepower to the joint force commander to close with and destroy enemy ground forces using Survivability–capable of surviving against the full range of battlefield threats, Lethality–capable of destroying any known threat on the modern battlefield, Mobility–key components include speed, acceleration, and maneuverability, and Information Dominance–key components are situational awareness and digital C2. Current fleet age and expected service requirements out to FY2032 mandate a rebuild and selective upgrade program to sustain combat viability and overmatch against emerging threats at acceptable risk.

Program Status. The selective upgrade M1A2 SEP is currently being fielded to the Counter Attack Corps and is expected to be complete by FY12. The synchronization of the Bradley and Abrams with Unit Set Fielding remains under funded for 3rd Armored Cavalry Regiment and 3rd Infantry Division. The AIM program is funded to support 790 platforms for the Active Component forces.

Bradley Fighting Vehicle

Description. The M2A3 (rebuild and selective upgrade) fielding (1,037 platforms) to the Counter Attack Corps ensures overmatch by increasing the ability to acquire, identify, and engage over the A2, in both day and night conditions. The A3 Bradley allows the crew to acquire more targets faster by adding the 2nd Generation FLIR with a CITV. The Position/Navigation (POS/NAV) system enhances the crew's navigation capability and their ability to pinpoint and identify friendly and enemy positions. The A3's new integrated FBCB2 digitized C2 system provides for a near-real-time integrated data link between the A3 Bradley and other combat vehicles. The M2A2 ODS-D, a digitized through appliqué M2A2 ODS Bradley, supports the fielding of engineer variants (295 platforms) within the Counter Attack Corps. The M2A2 ODS has limited upgrades to improve lethality, survivability and reliability is expected to be fielded to Active Component forces (1,333 platforms).

Operational Requirement. The BFV provides mobile, protected transport of an infantry squad to critical points on the battlefield and performs cavalry scout and other claimant (Bradley-equipped combat engineer, fire support and Stinger teams) missions. Current fleet age and expected service requirements

mandate rebuild and selective upgrades to ensure the Bradley fleet remains reliable and sustains combat overmatch within acceptable risk.

Program Status. Between FY98 and FY12, the Army will complete the modification of 1,037 A2 BFVs to the A3 configuration and 295 M2A2 ODS to the M2A2 ODS. Digitization of the rest of the Active Component fleet is subject to an FY03 decision that is linked to the FY03 FCS technology decision and the Abrams decision discussed above.

M113 Family of Vehicles

tracked vehicles, with 16 configurations deployed throughout the world. M113 FOV variants include the M113A2/A3 Armored Personnel Carriers (APC), M577A2/A3 Command Post Carriers, M981A2/A3 Fire Support Team Vehicles (FIST), M1064A2/A3 120mm Mortar Carriers, M548A1/A3 Cargo Carriers, M58/M1059/M1059A3 Smoke Generator Carriers, M901A1 Improved Tow Vehicle, M1068A2/A3 Standardized Integrated Command Post System (SICPS), (a key role in digitized divisions) and Opposing Forces Surrogate Vehicle for the National Training Centers. The M113 modernization program provides a highly mobile, survivable, and reliable tracked platform that is able to maintain pace with Abrams and Bradley units. This platform is highly adaptable to a wide range of current and future battlefield missions at a minimal operational and support cost.

Operational Requirement. This system supports the legacy transition path of the Army's Transformation Campaign Plan. Operation Desert Storm highlighted the need to modernize the M113 A2 to the A3 configuration to keep pace with tomorrow's battlefield. Furthermore, the M577A3s and M1068A3s support the Interim warfighters' digitized requirements and capabilities, such as FADC2, AFATDS, TOCs, and MCS. This multi-purpose fleet is required for the next 30 years and will continue to be modernized to ensure the Army's transformation is successful.

Program Status. Modernization of the M113 FOV enhances its operational capability, extends its service life, and provides the soldier with a more mobile, reliable and survivable system. The Army has funded $60 million for retrofitting the counterattack corps with T-150 track, which significantly extends track live and lowers sustainment cost.

Missiles

Description. The Army continues to improve the Anti-Tank (AT) lethality and survivability of its light and early entry forces through implementation of several key equipping and force structure initiatives.

Improved Target Acquisition System (ITAS). Army light infantry battalions will be rounded out with a Reserve Component (RC) AT company (-) which

will provide an AT capability equivalent to that of airborne and air assault infantry battalions. Specifically, the light infantry battalion's heavy AT capability will be increased from four to twenty TOW systems through an augmentation with four RC platoons during mobilization. With its second generation Forward Looking Infrared (FLIR) and eye-safe laser range finder capabilities, ITAS greatly increases the situational awareness, lethality and survivability of these TOW HMMWV equipped units. ITAS' digital architecture and modular design enables it to insert new technologies such as a moving target indicator and spectral discrimination while simultaneously accommodating the necessary modifications to fire the Common Missile.

Line of Sight Anti-Tank (LOSAT). The assignment of five divisional Round-Up AT battalions equipped with LOSAT, will further improve the AT capabilities of our light, airborne and air assault divisions. LOSAT battalions, with their rapid fire, extended range and highly effective kinetic energy (KE) missiles, will complement chemical energy (CE) missiles at the battalion level. This combination of KE and CE missiles will significantly enhance the lethality and survivability of our light forces by exasperating threat countermeasure design and employment. Moreover, LOSAT technology currently has great potential for Objective Force application given the ability of LOSAT KE munitions to defeat all predicted armored vehicles.

Javelin. The Javelin missile provides our dismounted infantry a highly formidable medium AT capability for the dismounted close fight. As a fire-and-forget missile with top and direct attack modes and 2.5 times the range, Javelin is a leap-ahead improvement over Dragon. Moreover, the Javelin's Command Launch Unit (CLU) greatly improves battlefield surveillance and survivability.

Common Missile. As the primary weapon system for Comanche and a candidate lethality system for Future Combat Systems, Common Missile is an Objective Force system. Additionally, with appliqué kits, Common Missile will be backward compatible to dominant maneuver ground forces equipped with ITAS and the Improved Bradley Acquisition System (IBAS). Able to engage threat armor and ADA targets at extended ranges, Common Missile will maximize the survivability of our ground and air platforms and their crews. A blocked evolutionary acquisition program, the initial Common

Missile to be fielded will meet a minimum set of threshold ground and air missile requirements with a single missile that improves existing capabilities by first fielding Common Missile's core capability, while supporting blocked increases in capability through its modular design. As a single missile for ground and air platforms, Common Missile is critically important to maximizing the Objective Force's operational flexibility and minimizing its logistics requirements.

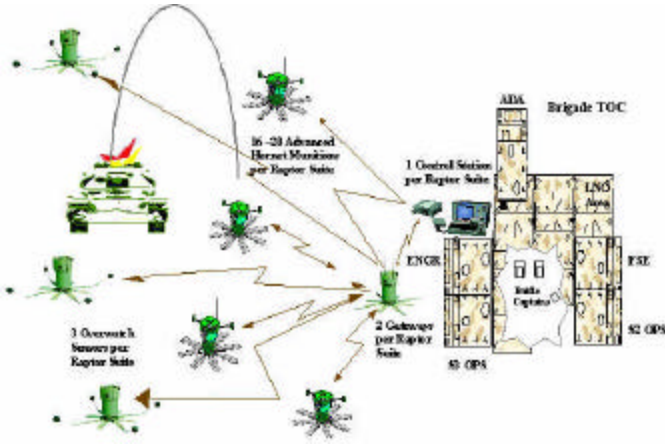
Operational Requirement. Our light, interim and heavy infantry forces must have significant lethality against mechanized forces to ensure force protection, combat overmatch and sustainability on the symmetrical and asymmetrical battlefield. Providing extended range fire and forget missiles is critically important to ensuring the survivability of both our ground and air platforms. Legacy Force ground systems, expected to be in service throughout the transformation to the Objective Force, and Objective Force ground and air systems must have lethality against emerging mechanized and ADA threat forces without large logistical requirements.

Program Status. For the near term, our current inventory of TOW 2A and TOW 2B missiles will remain the core heavy AT capability of our legacy ground forces until the Common Missile replaces these legacy missiles. Common Missile will also replace the Laser Hellfire, which ended procurement in FY97, and the Longbow Hellfire missile, which ends procurement in FY03. Critically important to the Objective Force, Common Missile also mitigates near term TOW 2A, TOW 2B, Laser Hellfire and Longbow Hellfire inventory risk.

Mobility and Countermobility Systems

Description. Mobility systems play a vital role in the Army's Legacy and Interim Forces by ensuring the Army retains freedom to maneuver in hostile environments. Operation Enduring Freedom has highlighted the importance of systems that provide ground forces with the ability to detect and defeat minefields and other battlefield obstacles. As the Army transitions to the Objective Force, it will look to the S&T community to provide leap ahead capabilities.

Raptor, Intelligent Combat Outpost



Description. Raptor is a tactical or operational obstacle consisting of a Control Station, Advanced Hornet munitions, one or more Gateways (artificial intelligence/data fusion), Overwatch Sensors (OS), and long-haul communications. Block I Raptor obstacles will be hand-emplaced at ranges 35-50 km forward of the maneuver brigade or Unit of Action Tactical Operations Center (TOC), and will detect, classify, and autonomously engage threat heavy and light tracked and heavy wheeled vehicles based upon programmed attack tactics.

Operational Requirement. Raptor is a suite of lethal and non-lethal munitions, sensors, communications, and software working in combination to enable the commander to protect his battlespace and influence the actions of his adversaries.

Program Status. This system is currently in S&T development.

Handheld Standoff Mine Detection System (HSTAMIDS)



Description. HSTAMIDS is a handheld mine detector capable of detecting metallic and non-metallic anti-tank (AT) and anti-personnel (AP) mines. This system combines the maturing technology of ground penetrating radar (GPR) and improved metal-detection (MD) to provide a high probability of detection (Pd) for both large and small metallic and non-metallic AT and AP mines. HSTAMIDS will significantly improve detection of the smaller, low-metal AP mines with a probability of detection for all mine types in excess of 95%. HSTAMIDS will reduce the percentage of false detections associated with operating in combat zones, by allowing the operator to "tune-out" the metallic clutter that affects the Army's legacy mine detector, the AN/PSS-12. The infrared (IR) forward-looking detection subsystem component of HSTAMIDS has been deferred to future product improvement effort. The overall design weight of the HSTAMIDS will be comparable to that of the AN/PSS-12 for both detector head weight and control equipment.

Operational Requirement. HSTAMIDS is a handheld mine detector capable of detecting metallic and non-metallic Anti-Tank (AT) and Anti-Personnel (AP) Mines. HSTAMIDS will be a significant improvement over the current capability for detection of the smaller low-metal mines.

Program Status. HSTAMIDS successfully completed Program Definition and Risk Reduction (PDRR) and entered Engineering & Manufacturing Development (EMD) in November 2000. HSTAMIDS will begin Operational Testing (OT) in FY03, and production in FY04. This program was identified as a potential acceleration candidate to meet emerging and urgent needs.

Ground Standoff Minefield Detection System (GSTAMIDS)

Description. GSTAMIDS Block 0 clears a 20 Km route in 12 hours using a tele-operated detection vehicle, Mine

Protected Clearance Vehicle (MPCV), and a towing vehicle with proofing trailers. GSTAMIDS Block 1 clears a 40 Km route in 6 hours. The detection vehicle utilizes a multi-sensor mine detection suite consisting of Metal Detection, Ground Penetrating Radar (GPR), Quadrupole resonance (QR), and Infrared (IR) to locate all anti-tank mine types. The MPCV provides soldiers a blast-protected vehicle from which to remotely operate the lead detection vehicle and mine detection sub-systems. The MPCV supports mine confirmation and neutralization sub-systems. GSTAMIDS Block 0 is a contingency-based item; a total of 10 systems will be fielded to contingency stocks from FY03-04. GSTAMIDS Block 1 will be fielded to Corps Engineer Battalions (12 systems per Corps Engineer Battalion) in FY 05-16.

Operational Requirement. The mission of GSTAMIDS Block 0 and Block 1 is to conduct route clearance operations, detecting all Anti-Tank mines. GSTAMIDS Block 2 will provide a forward-looking capability for mine detection and avoidance. GSTAMIDS is a spiral development effort to provide an incremental, near-term capability to execute on-road countermine missions.

Program Status. GSTAMIDS Block 0 is in year two of a three year EMD Phase. GSTAMIDS Block 0 begins Government testing in Sep 01. GSTAMIDS Block 0 begins production in FY02. GSTAMIDS Block 1 begins production in FY05. This program was identified as a potential acceleration candidate to meet emerging and urgent needs.

Ground Combat Maneuver, Mobility and Soldier System Summary

The Army cannot devote the resources necessary to meet all requirements and has had to make difficult choices based on capabilities needed, emerging threats and the operational environment. Legacy Force readiness to meet the non-negotiable contract with America to fight and win the Nation's wars must be adequately resourced without delaying or slowing the Transformation process. The procurement and fielding of the Interim Force (IBCTs) is fully funded and on track. Objective Force development is the main effort of Transformation, and the Army is confident it will meet the challenges it has set for itself and field an Objective Force capability by the end of this decade.

Aviation Modernization in Support of Transformation

Overview

Aviation is an essential contributor to *Joint Vision 2020* Operational and Enabling Concepts of Dominant Maneuver, Full Dimensional Protection, Precision Engagement, Focused Logistics, and Information Superiority. Operating as a part of the Joint/Combined Arms Team, aviation is

a key combat enabler capable of shaping the battlefield, developing situational awareness, providing long range fires, shielding the maneuver force, and extending the tactical and operational reach of maneuver commanders for the interim and objective force. Aviation supports the Army's requirement to establish and maintain an unrelenting OPTEMPO. Aviation is relevant to the Army's stability and support requirements, to include Home Land Defense (HLD) requirements. Aviation modernization and sustainment insure these capabilities are maintained. These include:

- Fielding the RAH-66 Comanche
- Recapitalizing the AH-64 Apache, UH-60 Black Hawk, CH-47 Chinook
- Modernizing the Fixed Wing fleet
- Joint/combined force digitization/connectivity
- Aircraft Survivability Equipment (ASE) upgrades
- HELLFIRE modernization and developing a lower cost, lighter weight version and an Advanced Precision Kill Weapon System (APKWS) to augment HELLFIRE
- Improving soldier survivability/stamina through Air Warrior
- Replacing obsolete air traffic services and aviation ground support equipment
- Developing the technologies to insure UAV interoperability and Next Generation/Future System development
- Leveraging technology to reduce costs and improve training.

Legacy Force Aviation Modernization

Selected aviation Legacy Force modernization is essential to current operations as well as support to interim and objective forces. Key legacy force initiatives are divesting older aircraft and recapitalizing existing aircraft projected to remain in the fleet into the far-term.

Under current projections, the AH-64 will remain in the fleet until sufficient RAH-66 have been procured to replace them in the FY2020 timeframe. Current funding provides for remanufacture of 501 of 741 AH-64As to the AH-64D configuration. Recapitalization will extend aircraft life by incorporating 2nd Generation FLIR and addressing high maintenance demand/O&S cost drivers. The OH-58D Kiowa Warrior will remain in the fleet under current transition plans until at least FY2013. Kiowa Warrior modernization is limited to safety enhancements and software upgrades to maintain compatibility with the ground force. Just over 950 UH-60As averaging over 18 years old are in critical need of recapitalization. The UH-60M/HH-60M recapitalization program is scheduled to begin production in FY04 to bring these aircraft up to UH-60L lift/range capabilities, incorporate more modern and interoperable avionics, and extend aircraft life. The CH-47 modernization program includes a fleet wide engine upgrade program and recapitalization of 243 CH-47Ds to the CH-47F configuration. These efforts restore lift capabilities, incorporate digital avionics, and extend aircraft life by approximately

20 years. The Army is currently reviewing its fixed wing requirements for the Objective Force. In the interim it is modernizing its aging, turboprop C-12 and RC-12 fleet with Global Air Traffic Management system (GATM) as well as other safety and cockpit management systems. Older C-12's are being replaced with the UC-35B, which has already been identified as an Interim to Objective Force system. A review of all Army fixed wing requirements is underway. Essential to the support, sustainment, and modernization of the aircraft programs discussed above are aviation's supporting capability programs (Aircraft Survivability Equipment (ASE), avionics, Aircrew Integrated Systems (ACIS), Air Traffic Services/Air Traffic Control (ATS/ATC), Aviation Ground Support Equipment (AGSE), Training Aids, and Devices, Simulators, and Simulations (TADSS)). Aviation TADSS must leverage technology to provide effective and affordable combined arms/joint training and mission rehearsal and to insure simulators remain current with the aircraft/systems they are replicating.

The Interim Aviation Force

The urgent need to address the steadily deteriorating condition of the aviation fleet and accelerate reserve component modernization coupled with fiscal realities have forced a deferral in converting aviation units to the multi-function battalion structure documented in the *2001 Army Modernization Plan*. The planned conversion has been superseded by a more affordable and timely restructure plan. This interim aviation force is the bridge to an objective aviation structure. The interim transformation plan:

- Postures aviation for transition to the objective force concept
- Accelerates divestiture of approximately 1,000 legacy aircraft (AH-1s NLT FY02 and UH-1s NLT FY04)
- Accelerates modernization across the Active and Reserve Components (transformation to interim structure complete FY04 timeframe)
- Restructures and standardizes attack and lift formations across the force (divisional attack battalions to 18 aircraft, Corps attack battalions to 21 aircraft, Cargo companies to 14 aircraft, reduces number of utility companies)
- Adjusts stationing and alignment of RC units to mitigate near-term risk associated with reducing Active Component lift assets
- Maximizes training technologies to maintain crew proficiency
- Invests in initiatives to improve aircraft reliability/maintainability
- Continues Emphasis on fielding Comanche

This interim structure provides capabilities necessary to meet Army requirements across the spectrum of operations until transition to an objective force structure becomes feasible. Implementation of Flight School XXI remains an unprogrammed priority (additional TH-67 procurement required). Flight School XXI will improve aviator proficiency and allow retirement of legacy OH-58C training aircraft. The Army will continue to refine aviation objective force structure requirements

with the expectation that it can be implemented in a timeframe more in line with the Army's objective force implementation plan and RAH-66 fielding.

Objective Force Aviation Modernization

The primary role of Objective Force aviation is to dominate with precision fires, provide accurate and timely reconnaissance and Command and Control (C2), provide force protection, and enhance close combat operations through air assault, aerial resupply, and force repositioning. Aviation is envisioned to consist of modular units capable of rapid deployment with early entry forces and split based operations once deployed in theater. Key objective force enablers are the RAH-66 Comanche and key enabling technologies in electronics, UAV interoperability, air platforms, propulsion systems, and weaponization required for insertion in current systems or incorporation into next generation/future system (i.e., Future Utility Rotorcraft, Air Maneuver & Transport, Modernized HELLFIRE replacement, Advanced Precision Kill Weapon System (APKWS) and future Unmanned Aerial Vehicles (UAVs)).

The Army will continue to examine the best means to achieve the vertical envelopment capability required to rapidly project Future Combat System equipped forces across difficult or distant geographic locations. An Air Maneuver & Transport (also referred to as Future Transport Rotorcraft) represents one solution should an organic Army system be required. Regardless, the CH-47F is expected to remain the Army's heavy lift helicopter until at least the 2020-25 timeframe.

To support full spectrum logistics aviation must be as responsive and capable as the force it supports. To improve responsiveness, reduce vulnerability, and increase operational momentum, aviation must reduce the current in-theater aviation logistics footprint. This will require modernization of logistics systems and review of manpower requirements.

Discussion of Key Equipment

RAH-66 Comanche

Description. The RAH-66 Comanche is the Army's objective reconnaissance and attack helicopter. No other current or programmed helicopter can meet this requirement. Comanche is designed to meet objective force mission requirements for reconnaissance and attack worldwide, day or night and under adverse weather conditions. It is a 2-pilot, twin engine (T-801) aircraft with an all-composite, low observable fuselage and second generation targeting and pilotage sensors. Supportability features include embedded diagnostics, minimal special tools, reduced support equipment, and fewer parts, which contribute to a reduced logistical

footprint. Comanche is self-deployable as well as transportable.

Operational Requirement. Comanche supports the objective force commander as a survivable, multi-role reconnaissance/attack platform. Comanche's ability to develop and share the "common operating picture" and orchestrate lethal, non-lethal, precision, direct and indirect fires is critical to the integration and synchronization of air-ground team operations of the objective force. By interfacing with Army and Joint C^4I systems and teaming with UAVs, Comanche will further extend the operational reach of the maneuver force. Comanche's will be assigned to reconnaissance, attack, cavalry, and special operations units.

Program Status. (Subject to Change Based Upon Comanche Restructure Decisions) Comanche is in engineering and manufacturing development (EMD). Department of Defense approval to enter the EMD stage was granted on 4 April 2000. Thirteen production representative aircraft will be built through FY 2005. This provides fully equipped aircraft to support the flight test development program and evaluate the system in the field environment prior to initiation of LRIP and accelerates Fire Control Radar development. The RAH-66 acquisition objective is 1213 aircraft.

AH-64 Apache

Description. The AH-64 Apache is the Army's heavy division/Corps attack helicopter. The AH-64D remanufacture effort incorporates a millimeter wave Fire Control Radar (FCR), Radar Frequency Interferometer (RFI), fire and forget radar guided HELLFIRE missile, and cockpit management and digitization enhancements. The combination of the FCR, RFI, and the advanced navigation and avionics suite of the aircraft provide increased situational awareness, lethality and survivability. Both A and D models are programmed for recapitalization to address Task Force Hawk/Kosovo lessons learned (2^{nd} Gen FLIR, non line-of-sight communications, video transmission/reception, etc.) and reduce maintenance cost drivers. Change 1 to the Modernized Apache Attack Helicopter ORD, dated 21 December 1993, Paragraph 4.b.1(f), states the desire that one model engine be applied fleet wide and performance of a non-Longbow equipped aircraft should equal or exceed that of Longbow equipped aircraft. This initiative of pure fleeting with 701C engines will be examined under the recapitalization of the AH-64D Longbow.

Operational Requirement. Apache provides the maneuver commander a highly mobile and lethal aerial weapons platform with an array of armaments to destroy armor, personnel and materiel targets day or night and under obscured battlefield and/or adverse weather conditions. Apache is assigned to attack battalions and cavalry units.

Program Status. The Army will convert a total of 501 A models to the Longbow configuration. Multi-Year I delivers 232 AH-64Ds by FY02. A second multi-year contract for an additional 269 AH-64Ds is also programmed with deliveries through FY 2007. Fielding of the 2nd Generation FLIR to the total fleet begins in FY04.

UH-60 Black Hawk

Description. The UH-60 is the Army's objective utility and Medical Evacuation (MEDEVAC) helicopter. The UH-60 fleet is composed of approximately 960 UH-60As, which began production in 1977, and 570 UH-60Ls, which began production in 1989. Black Hawk can transport 11 fully equipped combat troops and external loads up to 8,000 lbs for the UH-60A and 9,000 lbs for the UH-60L. The Army has funded the procurement of the additional UH-60s needed to reach its procurement objective of 1680 by FY12. The UH-60M/HH-60M (MEDEVAC variant) program will recapitalize and upgrade aging UH-60s. This program inserts digital technologies, addresses operating and support cost drivers, incorporates Global Air Traffic Management (GATM) requirements, integrates Air Warrior, and extends aircraft life. The Black Hawk Modernization ORD calls for Block II objective requirements. Improvements needed to reach Block II parameters will be incorporated later in the UH-60 recapitalization program. Analysis of the Army's Objective Force may require development of a new utility aircraft, currently referred to as the Future Utility Rotorcraft (FUR). Another significant modification is the Army Airborne C2 System (A2C2S). This mission kit will convert selected UH-60s into an airborne tactical operations center, allowing C2 on the move and supporting the commander's situational awareness and common view of the battlefield requirements.

Operational Requirement. The UH-60 provides the force commander rapid and agile maneuver through air assault, general support, airborne C2, and MEDEVAC. It gives commanders the ability to initiate, conduct, and sustain combat operations by providing internal and/or external lift of troops, weapon systems, supplies, and equipment. In the airborne C2 role, it provides full joint and combined interoperability with other C4ISR elements to commanders at all echelons. The UH-60 is vital to the HLD needs of our nation. The UH-60 is heavily utilized in disaster relief operations, medical evacuation, fire suppression, search and rescue, and VIP transport.

Program Status. The UH-60M/HH-60M program is currently in System Development and Demonstration Phase. Milestone C is scheduled for the 2nd quarter FY04 with First Unit Equipped scheduled for FY06. A2C2S begins full-rate production in FY03.

CH-47 Chinook

Description. The CH-47 Chinook is a twin-turbine, tandem-rotor, heavy-lift transport helicopter with a useful load of up to 25,000 pounds. The CH-47 modernization program will provide commanders a more reliable, less costly to operate aircraft compatible with Army digital connectivity requirements. Key modifications integrate an upgraded T55-GA-714A engine to restore performance capability, digital avionics, Air Warrior, emerging Global Air Traffic Management (GATM) requirements, enhanced air transportability, and an Extended Range Fuel System II (ERFS II) for self-deployment missions. It will also incorporate reliability and maintainability improvements to include airframe tuning for vibration reduction, corrosion protection, digital source collector, and recapitalization of 113 components. Currently there are 431 D models in the inventory. The current program recapitalizes 300 of these aircraft and 36 special operations aviation MH-47s. The decision on recapitalizing the remainder of the CH-47D fleet is dependent on funding and timelines for fielding the Air Maneuver and Transport.

Operational Requirement. As the Army's only heavy lift helicopter, the mission of the CH-47 is to transport troops, supplies, weapons, and other cargo in general support operations. The CH-47 is vital to the HLD needs of our nation. Secondary missions include medical evacuation, aircraft recovery, parachute drops, disaster relief, and search and rescue. Aircraft are fielded to heavy helicopter companies and Special Operations Aviation.

Program Status. The CH-47F completed a Milestone 0/II decision and is currently in the Engineering and Manufacturing Development phase with 2 aircraft conducting developmental and operational testing. Low rate initial production (LRIP) is programmed for FY03 with FUE projected for February 2006.

Fixed Wing

Description. The Army fixed wing program is composed of approximately 300 aircraft categorized by a variety of missions (special electronics mission aircraft (SEMA), operational support airlift (OSA) and other mission support aircraft (OMSA). The aircraft are broken down into specific types, which are short range (C-12), medium range (UC-35), long range (C-37, C-20), cargo (C-23) and SEMA (RC-12, RC-7). Fixed Wing aircraft provide efficient, effective transportation during peacetime and wartime operations. SEMA aircraft collect, analyze, and disseminate signal communications and imagery intelligence in support of wartime requirements for CINCs, field commanders and National Intelligence Assets.

Operational Requirement. Fixed-wing aircraft provide the force commander

with rapid movement of personnel, logistics as well as intelligence support. Additionally, the long-range aircraft provide Army leadership with dedicated VIP support while also providing the ability for command and control. Fixed-wing aircraft are heavily utilized in disaster relief operations, air movement, (personnel, supplies), peace enforcement missions, nations assistance, civil support, counterdrug, WMD/NMD, PSYOPS material delivery, security assistance, VIP transport and Homeland Defense.

Program Status. The UC-35 (medium range) is currently in procurement with 26 on hand with an AOA of 67. There is currently one more UC-35 programmed within the FY02-07 Plan for procurement. The Aerial Common Sensor is currently being developed as the replacement for the SEMA aircraft (RC-12 and RC-7). This aircraft is programmed to start fielding in FY09 (60 aircraft). The major initiative for fixed wing is the development of TRADOC approved Doctrine and Force Structure that will determine the Army Fixed Wing requirements for the Objective Force. These TRADOC documents will be completed in FY02 and determine the replacement for the aging C-12 (short range aircraft) and C-23 (cargo aircraft). These aircraft will need replacing starting in FY09.

Aviation Rockets and Missiles

HELLFIRE (HF) Missile

Description. The HELLFIRE (HF) air-to-ground missile is employed to destroy high value point targets. Semi-active laser (SAL) HF tracks laser energy delivered by ground or airborne designators while Longbow HF uses internal millimeter wave radar frequency (RF) for autonomous guidance. The requirements for HELLFIRE modernization are currently being addressed by the Common Missile Development Program. The next generation of HELLFIRE is expected to provide significantly increased range, lethality and resistance to threat countermeasures. It is expected to combine the precision point target capability of the SAL HF and the adverse weather fire-and-forget capability provided by the Longbow HF into one missile with a multi-mode seeker. The Advanced Precision Kill Weapon System (APKWS) incorporates laser guidance into the 2.75”-70 rocket to provide a lower cost, lighter weight, precision weapon capable of engaging non-armored to lightly armored targets and providing an alternative to Hellfire against targets such as buildings,

Command Posts, ADA sites and other targets not requiring the heavier Hellfire.

Operational Requirement. AH-64 Apache, OH-58D Kiowa Warrior and RAH-66 Comanche utilize HF as their primary anti-armor munitions. The complementary precision point target engagement capability of the SAL and the fire-and-forget, adverse weather capability of the RF HF provide the battlefield commander with flexibility across a wide range of mission scenarios, permitting fast and decisive battlefield response. APKWS will significantly improve aircraft stowed kill capability in scenarios requiring engagement against non-armored or lightly armored targets.

Program Status. SAL HF missiles are no longer in production. Longbow HF entered production in 1995 and completes production of 12,905 missiles in FY03. Modernized HELLFIRE requirements are being integrated into the Common Missile program with FUE scheduled for 2010 or beyond. APKWS is scheduled to begin production in FY05 as a replacement for the current un-guided Hydra Rockets. The APKWS program includes improvements to all warheads.

Supporting Program Modernization

Aviation's supporting programs are essential to the support, sustainment, and modernization of the aircraft programs discussed above. These programs are essential to sustain and protect crews/aircraft, maintain interoperability with supported units, and field objective force capabilities.

Aircraft Survivability Equipment (ASE). The FY 03-07 Army Plan zeroed all ASE procurement with the exception of FY02 funding targeted to Special Operations Aircraft. However, ASE modernization remains one of aviation's highest priorities, supported by lessons learned from Kosovo and other ongoing operations. Upgrade of legacy ASE had been previously deferred due to planned replacements by the Suite of Integrated RF Countermeasures (SIRFC) and the Suite of Integrated IR Countermeasures (SIIRCM). A revised strategy is being formulated which insures full capability for high priority aircraft and a reduced capability for the remainder of the fleet.

Aviation Electronics (Avionics). Avionics programs are designed to insure aviation meets combined arms and joint requirements for C2, mission planning, communications, navigation (to include worldwide civil airspace), information interchange, and interoperability. Major avionics initiatives include fielding a modern airborne C2 system for the UH-60 and a digital TOC for aviation units, ensuring FBCB2 interoperability requirements are achieved, and meeting GATM requirements for civil airspace utilization.

Aircrew Integrated Systems (ACIS). The ACIS program develops and fields equipment required to protect, sustain, and enhance aircrew performance in sustained operations, on the ground, and during survival-evasion operations. Air Warrior is the primary ACIS program. It begins fielding in FY04 providing

integrated, modular life support equipment and chemical/biological protection, reduced weight/bulk, and significantly improved flight time in MOPP 4 gear.

Air Traffic Services/Air Traffic Control (ATS/ATC). ATS/ATC supports modernization of Army land component commanders' automated airspace C2 requirements, ATC for aircraft operating in terminal and rear areas, and fixed base Army airfield National Airspace System (NAS)/Federal Aviation Administration (FAA) requirements.

Aviation Ground Support Equipment (AGSE). AGSE modernization focuses on improved automation and efficiency in three areas of development: modernization of Test, Measurement, and Diagnostics Equipment (TMDE); integration of seamless logistics management through automation systems such as the GCSS –A, and replacement of aging ground support equipment. These contribute to reduced logistical support requirements.

Aircraft Component Improvement Program (ACIP). ACIP sustains engineering efforts to investigate, correct, and qualify turbine engine and Auxiliary Power Unit (APU) field-identified, safety-critical and reliability deficiencies. Inserts emerging technology, extends service life, drives down Operating Maintenance (O&M) and spares costs, improves readiness by keeping engines operational and on-wing. Return on investment is greater than 12:1 based on historical data using standard, approved costing models. Leverages funds from Congressional special interest, USN, USAF and FMS. ACIP supports recapitalization/ Transformation objectives.

Training Aids, Devices, Simulators, and Simulations (TADSS). TADSS modernization is critical to the combat effectiveness of our aircrews and maintainers, and reducing operational costs. Simulator concurrency, fidelity, and combined arms tactical and mission rehearsal simulators/simulations that network virtual (and when applicable, constructive and live simulation systems) are major initiatives.

Aviation Summary

Aviation's modernization strategy is a balanced, risk minimizing approach. Modernization efforts are focused on fixing warfighting deficiencies (particularly those uncovered during recent operations), aligning the aviation force with the Army O&O concept, and fielding aircraft/subsystems required to achieve full spectrum operational capability. Modernization is achieved through force structure changes, training initiatives, and materiel modernization (RAH-66, AH-64D, UH-60M/HH-60M, CH-47F, Air Warrior and other subsystem modernization programs). Aviation is supported by Science and Technology programs

designed to provide the knowledge base required to upgrade existing aircraft and meet the challenges of new aircraft/weapon system development. The Army is committed to divesting legacy, obsolete AH-1, UH-1, and OH-58C aircraft and ensuring balanced modernization across both Active and Reserve Components. The Army is reviewing near-term aviation funding issues (aircraft survivability equipment modernization, digitization) to best align programs to create more executable strategies and to identify acceptable risks to allow tailoring of program requirements. Future challenges lie ahead with emerging GATM requirements for airspace utilization, interoperability requirements (UAVs, Force XXI Battle Command Brigade and Below (FBCB2), Global Combat Service Support- Army (GCSS-A)), HELLFIRE replacement, and conversion to an objective aviation force structure.

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